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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/572,683

03/20/2006

Johan Torsner

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EXAMINER

BEYEN, ZEWDU A

ART UNIT

PAPER NUMBER

2416

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/572,683	<b>Applicant(s)</b> TORSNER, JOHAN	
	<b>Examiner</b> ZEWDU BEYEN	<b>Art Unit</b> 2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03/20/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/08/2009</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's amendment filed March 2, 2009 has been entered. Claims 1, 4, 15-25 and 27 have been amended. No claims have been cancelled. Claims 29 and 30 have been added. Claims 1-30 are pending in this application, with claims 1 and 15 being independent.

### ***Information Disclosure Statement***

2. An initialed and dated copy of applicant's IDS form 1449 submitted 04/08/2009, is attached to the instant office action.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 and 16-25 and 27 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "receiving at a medium access control layer data units from a higher radio link control layer" it is not clear which higher radio link control layer referring to.

In claim 16-25 and 27 the phrase "the controller" lacks antecedence basis.

### ***Claim Rejections - 35 USC § 102***

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4, 9, 13-16, 18, 23, and 26-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Terry to **(US2004/0120284)**.

**Regarding claim 1**, Terry teaches communications system over a wireless interface between a radio network and a user equipment node (UE) **(see par [0023] and fig .3) ,** establishing a communication with the UE having at least one data flow**(see par [0023] and fig .3)**

receiving at a medium access control layer data units from a higher radio link control layer**([0042] discloses Node B receives PDU (i.e. RLC PDU according to par [0038]) from RNC. Furthermore, fig.3 discloses Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer))**

analyzing at the medium access control layer some or all of a header of a radio link control data unit associated with the one data flow**([0042] discloses once the Node B receives the PDU from RNC it reads CmCH-Pi of the PUD that is located in the header Furthermore, fig.3 discloses Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer))**

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based on the analysis, determining at the medium access control layer a priority of the data unit relative to other data units associated with the one data flow([0042] discloses based on the CmCH-Pi that is read from the received PDU the Node B determines the priority Furthermore, fig.3 discloses Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer))

scheduling at the medium access control layer transmission of higher priority data units associated with the one data flow before lower priority data units associated with the one data flow([0042] discloses Node B transmission scheduler services the higher priority in advance of lower priority. Furthermore, fig.3 discloses Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer))

**Regarding claim 15**, Terry teaches a node in a radio network for use in facilitating a communication includes at least one data flow over a wireless interface with a user equipment node (UE),( see par [0023] and fig .3 )

a medium access controller for receiving data units from a higher radio link controller included in a radio network controller (RNC), ([0042] discloses Node B receives PDU (i.e. RLC PDU according to par [0038]) from RNC. Furthermore, fig.3 discloses Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer))the medium access controller being further configured to:

analyze some or all of a header of a radio link control data unit associated with the one data flow([0042] discloses once the Node B receives the PDU from RNC it reads CmCH-Pi of the PUD that is located in the header Furthermore, fig.3 discloses

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**Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer));**

determine, based on the analysis, a priority of the one data unit relative to other data units associated with the one data flow ([0042] discloses based on the CmCH-Pi that is read from the received PDU the Node B determines the priority Furthermore, fig.3 discloses Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer))

schedule transmission of higher priority data units associated with the one data flow before lower priority data units associated with the one data flow([0042] discloses Node B transmission scheduler services the higher priority in advance of lower priority. Furthermore, fig.3 discloses Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer)).

**Regarding claims 2 and 16,** Terry teaches the analyzing steps includes determining the priority based on radio link control data unit header information that does not explicitly indicate a priority for the data unit ([0042] discloses Node B reads CmCH-Pi and determine the priority, However, CmCH-Pi only tells how many times the PDU has been transmitted which means it does not explicitly tells whether its high priority or low priority).

**Regarding claims 4, and 18** Terry teaches the method is performed in a radio base station ([0042] discloses performing scheduling according to priority at the Node B which is in the base station) prioritizing retransmission of a previously-transmitted data unit associated with the one data flow over an original transmission of a data unit

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associated with the one data flow **([0043] discloses retransmit PDU have a higher priority than the priority of the original transmission)**

**Regarding claims 9, and 23** Terry teaches storing data units associated with the one data flow in memory at the medium access control layer so that higher priority data units are accessed for transmission before lower priority data units**([0042] discloses determining the proper priority queue for the PDU, and services the higher priority queues in advance of lower priority queues)**

**Regarding claims 13, and 26** Terry teaches the radio network includes a node B (i.e. **fig.6 box 104**) coupled for communication with a radio network controller (RNC)**(fig.6.box 102)** , and wherein the higher radio link layer is a radio link control (RLC) layer implemented in the RNC **(fig.6. connection line 110)** and the medium access control layer is a high speed-downlink shared channel (HS-DSCH) medium access control layer implemented in the node B**(fig.6 connection line 118.Furthermore, [0047] discloses HS-DSCH where the Node B MAC-hs entity schedules transmissions).**

**Regarding claims 14, and 27** Terry teaches wherein the method does not rely on priority-specific signaling from the RNC to the node B to perform the determining step**([0042] Node B determine the priority of the PDU by reading CmCH-Pi of the PDU which means there is no priority-specific signaling from the RNC) .**

**Regarding claim 28,** Terry teaches a mobile radio communications system including the node in claim 15 **(see fig.6).**

**Regarding claim 29,** Terry teaches the node is a radio base station **(see fig.6).**

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**Regarding claim 30**, Terry teaches the method in claim 1 is implemented in a radio base station (**see par [0042] and fig.6**).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terry, in view of Itoh to **(US20020194361)**

**Regarding claims 3, and 17** Terry **does not teach** determining whether the data unit is a control type of data unit or a data type of data unit, and determining the priority based on the determined data unit type

**However, Itoh teaches** determining whether the data unit is a control type of data unit or a data type of data unit, and determining the priority based on the determined data unit type (**, [0225] discloses priority level determining according to**

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**the type of the packet, to the packets sent across the network, a high priority level to control packets and a low priority level to data packets).**

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry determining the priority based on data unit type, as suggested by Itoh. This modification would benefit the system of Terry to efficiently allocate the network resource.

Claims 5-7, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terry, in view of Xu to ( **US20030231594**)

**Regarding claims 5, and 19** Terry does not teach determining a sequence number for the data unit, and determining the priority based on the determined sequence number

However, Xu teaches determining a sequence number for the data unit, and determining the priority based on the determined sequence number ( **[0039] discloses retransmissions get higher priority but the oldest retransmission receives the highest priority. Furthermore, it discloses a network element monitors the difference between the RLP frame sequence number and the retransmission sequence number and gives the retransmissions with the smallest modulo sequence numbers the highest priority marking**)

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry to determine the priority based on a sequence number, as suggested by Xu. This modification would benefit the system of Terry to efficiently determine the oldest retransmit data unit.

**Regarding claims 6, and 20** Terry does not teach determining a highest sequence number of multiple data units associated with the one data flow, and determining which of the other data units associated with the one data flow is a retransmission based on the determined highest sequence number

However, Xu teaches determining a highest sequence number of multiple data units associated with the one data flow, and determining which of the other data units associated with the one data flow is a retransmission based on the determined highest sequence number ( **[0039]discloses a network element monitors the difference between the RLP frame sequence number and the retransmission sequence number and gives the retransmissions with the smallest modulo sequence numbers the highest priority marking**)

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry to determine data units associated with the one data flow is a retransmission based on the highest sequence number, as suggested by Xu. This modification would benefit the system of Terry to efficiently determine the oldest retransmit data unit.

**Regarding claims 7, and 21** Terry does not teach taking into account a modulo sequence numbering in determining which data units are retransmissions

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However, Xu teaches taking into account a modulo sequence numbering in determining which data units are retransmissions (**[0039] discloses modulo sequence numbers to determine the priority of a retransmit frame**).

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry to use a modulo sequence numbering for determining a retransmission data unit, as suggested by Xu. This modification would benefit the system of Terry to effectively determine the oldest data unit for the purpose of transmission.

Claims 8 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terry, in view of Pohjanvouri to (**US6567396**)

**Regarding claims 8, and 22** Terry does not teach determining a type of control data unit, and determining the priority based on the determined the type of control data unit

However , Pohjanvouri teaches determining a type of control data unit, and determining the priority based on the determined the type of control data (**col.7 lines 22-35 discloses a mobile station may run applications which generate high priority control data (e.g., to suspend a data transaction in favor of a voice transaction), low priority control data (e.g., to suspend a first data transaction in favor of a second data transaction) and control data associated with mobile station operation (e.g., measurement reports used to determine when a handoff is desirable). The mobile station may, for example, be permitted to use any one of**

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**frames or timeslots 4, 7, 8 and 9 in FIG. 4 to transmit the high priority control data or the mobile station operation control data, but may only be permitted to use frames or timeslots 8 and 9 to transmit the low priority control data).**

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry determining priority based on the determined the type of control data, as suggested by Pohjanvouri. This modification would benefit the system of Terry to efficiently allocate the network resource.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terry, in view of Puthiyedath to **(US7117521)**

**Regarding claims 10**, Terry does not teach removing duplicate data packets from the memory

However, Puthiyedath teaches removing duplicate data packets from the memory **(col.3 lines 20-25 discloses The original data buffer 108 may conduct an editing process to reorder the received data packets to ensure proper sequencing, discard duplicated data packets, and synchronize the audio/video data packets. A suitable retransmission delay time can be used when editing the original data buffer)**

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry removing duplicate data packets from the memory, as suggested by Puthiyedath. This modification would benefit the system of Terry to guaranty enough spaces for incoming data unit.

Claims 11 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terry, in view of Baroudi to (US 6594278)

**Regarding claims 11, and 24** Terry does not teach analyzing information in a payload portion of the radio link control data unit

**However**, Baroudi teaches analyzing information in a payload portion of the radio link control data unit (col.15 lines 5-10 discloses for giving the frame special priority if the frame is delay sensitive. The means for examining is used to examine payload types in the headers of the sub-frames, the unused portion in the headers of the sub-frames).

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry to analyze information in a payload portion of the radio link control data unit, as suggested by Baroudi. This modification would benefit the system of Terry to efficiently determine the priority of the data unit.

Claims 12 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terry, and Baroudi, and further in view of Jang to (US20030202501)

**Regarding claims 12, and 25** Terry does not teach if a polling bit is set in a first data unit associated with the one data flow, setting the polling bit in the header of a second data unit associated with the one data flow with a priority higher than that of the first data unit

**However**, Jang teaches if a polling bit is set in a first data unit associated with the one data flow, setting the polling bit in the header of a second data unit associated

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with the one data flow with a priority higher than that of the first data unit (**Col.3 lines 14-19 discloses re-transmitted PDUs given priority over first-transmitted PDUs, and set a polling bit in the re-transmitted PDU**).

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry to set a polling bit in the header of a second data unit associated with the one data flow with a priority higher than that of the first data unit, as suggested by Jang. This modification would benefit the system of Terry to transmit data unit that has a high priority fast.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1,15,2,4,12,16,3,17,5-8,18-20,22, and 25 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (See PTO-892).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZEWDU BEYEN whose telephone number is (571)270-7157. The examiner can normally be reached on Monday thru Friday, 9:30 AM to 6:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 1-571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Z. B./

Examiner, Art Unit 2416

/Huy D. Vu/

Supervisory Patent Examiner, Art Unit 2416